Structural and electrical myocardial remodeling in a rodent model of depression

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EFFECTS OF AMINEPTINE ON MEMORY PROCESSES: HABITUATION OF EXPLORATORY ACTIVITY IN MICE.

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In order to determine whether amineptine, a new dopaminergic antidepressant drug often used in geriatric population,can affect memory processes,an experimental model of memory was used in mice. The effects of amineptine were compared with those of memory facilitating or impairing drugs,i.e.strychnine,piracetam,phenobarbitone and imipramine.Adult C D1 mice were given two sessions in a classical exploration situation:open-field apparatus and the decrease in activity at the second session(habituation) served as an index of retention.An acquisition session consisted of placing singly each mouse in the open-field box and scoring exploratory activity over a 3-min period.At the end of this session,the mouse was removed,immediately injected ip with the test drug or its vehicle and then placed in its home cage The retention session given 1 or 5 days after the acquisition session was the same except that no injection was given.The good retention observed with a-1 day intersession interval was impaired by post- session administration of phenobarbitone or imipramine. The poor retention observed with a 5-day intersession interval was enhanced by post-session administration of strychnine,piracetam and amineptine.These findings suggest that memory processing does not depend on the activity of cholinergic system alone,because drugs i.e. amineptine which do not affect cholinergic system were also found to be effective.

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REWARDING PROPERTIES OF LHRH REVEALED BY CONDITIONED PLACE PREFERENCE IN MALE RATS

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Rewarding properties of 0.2, 1 and 5 ug/kg/ml i.p. of LHRH (Sigma LHRH acetate salt L-7134) were studied in Wistar rats (N=12) using a conditioned place preference (CPP) paradigm. With the CPP technique used in the present experiments, rewarding properties of LHRH are reflected in the greater amount of time the animals spent in the environment in which they received LHRH treatment. All rats were 8 weeks old at the start of experimentation. One adaptation session of 60 minutes was performed in the test-box (non-drug condition), in order to establish possible basic preferences for one or the other compartment. Subsequently LHRH was paired with one compartment (4 x 30 minutes), and the vehicle (0.9% NaCl) with the distinctive second compartment (4 x 30 minutes) of the test-box. Injection-session interval was 15 minutes. Overt behavioral changes were not observed after LHRH injections. Each inter-test interval was 24 hours. Finally the preference test took place in which the animals had access to both compartments (test duration was 60 minutes, non-drug condition). Relative time spent in each compartment and locomotor activity were measured. Male rats spent significantly more time in the part of the test-box associated with LHRH treatment (either in intact- or in castrated rats with a silastic testosterone implant), this treatment effect is found with 5 and 1, but not with 0.2 ug/kg. A dose-dependent effect was not found when 5 versus 1 ug/kg (instead of NaCl) was tested. The results indicate that a dose of LHRH which has been shown to effect the release of LH and consequently elevate plasma testosterone (in intact males), can be regarded to have rewarding properties for male rats within this CPP paradigm.

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BDZ RECEPTOR-MEDIATED EFFECTS ON PLASMA CATECHOLAMINE AND CORTICOSTERONE CONCENTRATIONS UNDER BASAL AND STRESS CONDITIONS

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The effects of the BDZ receptor agonist chlordiazepoxide (CDP) and antagonist Ro 15-1788 as well as their combination on basal and stress-induced plasma noradrenaline (NA), adrenaline (A) and corticosterone (CS) release were investigated. Novel environment stress (NES) that elevated CS, A and NA was used. Blood-sampling and drug injections were performed via a chronic cardiac catheter in freely behaving rats. Low doses of CDP (0.1-2.5 mg/kg) and a moderate dose of Ro 15-1788 (5 mg/kg) did not affect basal hormone release. CDP at higher doses (5-12.5 mg/kg) produced dose-dependent increases in basal CS release, but were without effect on basal NA and A levels. Ro 15-1788 potentiated the NES-induced CS release but attenuated the NES-induced NA response. Low doses of CDP reduced the NES-induced elevation in CS without changing the NES-elevated NA and A release. This CDP effect on CS was antagonized by pretreatment with Ro 15-1788. CDP at doses which elevated basal CS release, were not effective in reducing the NES-induced CS and A release but did inhibit the NA response to NES. The CDP effect on NES-induced NA release was completely blocked by Ro 15-1788, in contrast to the CDP effect on basal CS which was not blocked. Together, these findings suggest that the brain mechanisms controlling CS and NA release during stress conditions are linked to different BDZ-receptor systems.

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BEHAVIORALLY SELECTIVE EFFECTS OF CYSTEAMINE ON COGNITIVE PERFORMANCE

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Central somatostatin deficits have been established as part of the neuropathology associated with Alzheimer's disease. However, the functional contribution of the central somatostatinergic system to information processing remains obscure. The present study describes the effects of cysteamine-induced somatostatin depletion on the acquisition of a delayed spatial alternation task (DSA, FR 5; ITI of 2, 4, 8 sec), a signaled extinction discrimination task (SED, FR 10 - EXT 60 sec), and retention of a step-through passive avoidance task (PA). Biweekly injections of cysteamine (2-mercaptoethylamine HCl: 50 and 150 mg/kg s.c. administered 1 hr before testing) produced no statistically significant changes in the rate of acquisition in either the DSA task or the SED task, relataive to vehicle treated controls, $P > 0.05$. In contrast, retention of a one trial PA task was significantly reduced by a single dose of cysteamine at 50, 100, 150 and 200 mg/kg administered 1 hr before acquisition, $P < 0.01$. This effect was shown to be sensitive to behavioral manipulation since, using a double footshock, PA retention was significantly decreased only with the 150 and 200 mg/kg doses, $P < 0.01$. These results demonstrate that while disruption of the somatostatinergic system has no measurable effect on the performance of complex operant tasks, it can produce severe impairments in the performance of a passive avoidance response. Additional experiments will be necessary to delineate precisely the types of cognitive processes are spared and impaired following cysteamine-induced depletion of somatostatin.

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